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ABSTRACT

A study investigated how managers in various kinds of organizations make decisions and also examined ways that using the Marble Company simulation (developed by L. C. Lederman and L. P. Stewart in 1985) could enhance, clarify, and extend its findings. Managers were asked to write down what they would say to their subordinates in order to elicit the desired performance. What was not known was whether what the managers wrote was an accurate reflection of what they would actually say. Also not known was which managers were considered effective by their superiors or by their subordinates, or whether their chosen strategies would have worked in the sample situations. Using the Marble Company simulation with a series of intact groups (role-playing students or faculty) information on verbal and nonverbal behaviors was collected. Video cameras, stationary and portable, and unobtrusive observers were used during the three simulations. Results indicated that although the nonverbal behavior that the cameras were able to catch was invaluable in filling in and verifying or modifying personal observations, trained human observers were essential. Also, the debriefing session was an extremely valuable source of information. Motives offered and what individuals had done, compared to what others thought those individuals had done, frequently differed. Findings suggest that there are advantages and disadvantages to the Marble Company simulation (and in using simulation in general) but simulations can be a rich source of data on human communication. (RAE)

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# Data Collection and the Marble Company

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# DATA COLLECTION AND THE MARBLE COMPANY

by Nancy L. Harper

If you have ever played any competitive game with friends, relatives, or associates (bridge, volleyball, trivial pursuits), you know that behavior in games can reveal aspects of people's typical communication practices (such as the power balance in intimate relationships) that may be difficult to observe or measure in their "natural" settings. This fact provides at least one rationale for testing the possible uses of simulations for research purposes.

In this paper, I am going to point to a specific example of a research project carried out by myself and Randy Hirokawa, and discuss ways that using the Marble Company (Lederman & Stewart, 1985) simulation could enhance, clarify, extend our findings.

Hirokawa and I recently conducted research on how managers in various kinds of organizations make decisions (Harper and Hirokawa, 1986). For a number of obvious reasons, it was virtually impossible to observe managers engaged in this activity at their places of work, so we came up with an alternative which I will describe briefly below. However, the Marble Company provides an additional alternative. While it may be impossible to observe managers at their work place, it often is possible to get managers and their superiors and subordinates to come to a "lab" and play a game together (especially if you call it <u>training</u> and charge the company an excessive amount of money for the experience). If one accepts the likelihood that managers' communication behavior during the game is an accurate reflection of their daily communication behavior, and if the behavior exhibited can be accurately measured, simulation-gaming then becomes a way to reduce the tensions among internal, external, and ecological validity.

First, let me explain briefly the study Hirokawa and I conducted. We were interested in the persuasive strategies managers used to deal with subordinates who were not performing in the desired manner. We were also interested in whether men and women managers used the same strategies, and in whether strategies differed if the act the subordinate was asked to perform was obligatory (e.g., getting to work on time) or nonobligatory (e.g., making suggestions for improvement of work procedures to superiors). The method we used to collect data on these issues was to ask managers to write down what they would say to their subordinates in order to elicit the desired performance. [We did find differences. Essentially, we discovered that most males, 2/3, relied on power strategies in the obligatory situation and most females, 2/3, relied on

rationale strategies. In the nonobligatory situation, both males and females relied on rationale strategies: "Please do it, for the good of the company, your department, etc.].

So, we got results. But, we do not know if what managers wrote was an accurate reflection of what they would actually say. And, we do not know which managers were considered effective by their superiors or by their subordinates, or whether their chosen strategies would have worked in the sample situations. (Both power and rationale may be poor persuasive strategies in certain situations.)

This study coincided in time with my first observation of the Marble Company. I immediately recognized the possibility of using that simulation to get at some of the questions we could not attack through the method we used. Following that recognition, we invited Linda Lederman to come to Iowa in Spring 1987 to run the simulation for us while we experimented with ways of collecting data. Players in the game were students in group and organizational communication courses. Then this past Fall, Lederman came to Duquesne University and ran the Marble Company game using an intact group, the faculty of the communication department.

What did we find out? What can I tell you about using simulations, particularly the Marble Company, to collect data on communication behavior? At this point, what I can tell you is anecdotal, but at least it gets us started.

First, there were, as other communication research would suggest, obvious differences in the play of the game when the subjects were random selections of undergraduate students and when the subjects were an intact group of adults (the faculty). One difference had to do with the fact that some of us who observed the different subject groups were personally acquainted with the faculty members but did not know many of the students. And, most of the students did not know each other. Thus it was typical that someone would say, in the faculty debriefing, "Wasn't that just like George: He never wants to offend anyone so he avoids making decisions." Statements of this sort occurred with students only in self-reference, "I am like that. . . ." We also had a number of exchanges in which one faculty member would account for the behavior of another only to have the target of the explanation disagree violently, saying something like, "You think that you can account for everything according to learning theory, but that cookie cutter isn't applicable here, and I'm not sure it's ever valid." Needless to say, the experience of playing the Marble Game remained a popular topic of conversation for the next several weeks and even months. As the new Department Chair, I believed--and still believe--that I learned more about the faculty in that two hours than I normally would have learned in two months.

I also believe that I learned things about the students I observed playing the game, but I could not generalize about that group as I could with the faculty.

A number of empirical questions remain unanswered, however. For instance, if we ran this simulation with a group of managers and their subordinates, placing the most senior people in the most powerful positions and making the least senior serve as mini-marbles, would we see on-the-job behavior? Might it be better to mix managers from different companies rather than to use intact groups? Would it be better to "disguise" the purpose of the game by appointing people to positions randomly? or, as we did with the faculty, let people pick their positions? There are things to be learned about individuals by observing how they go about choosing a position. It seems that those who are less confident about their abilities choose to be mini-marbles. Those who are concerned about "hiding" tend to choose to be card-marbles or chief-marbles--these positions require less involvement than do others.

Another characteristic of organizational behavior that was clearly evident in the two student games was the difference between tall and flat structures. In one iteration, we used a relatively small room. The distance between the various layers of the organization allowed mini-marbles to hear the directions given to mid-marbles. The mid's did not have to be summoned to get their instructions and the mini's did not have to wait for the mid's to translate. The game moved quite rapidly and the winning team scored more points than any players Lederman had ever observed. Also, people were for the most part happy with the game, the outcome, and their teams.

In the other student iteration, we place mini-marbles down the hall, completely out of sight of the higher levels. The game went slowly. Some players simply quit trying. There was excessive grumbling by players at all levels. The mini's felt excluded, "treated like slaves," the team leaders felt frustrated that they were not getting information in a timely fashion, and the mid's felt angry at both their superiors and their subordinates. In the debriefing, people calmed down, but they were clearly not as happy about the experience or the outcome (no team did well and there was little difference between the "winners" and the "losers").

In the faculty situation, the physical setup was about half way between tall and flat. Perhaps because the structure was modal, or because of preexisting expectations about the relative power of individuals, or because of the natural suspicion faculty members have of being observed, we saw little expression of outright hostility or of high satisfaction.

In using the Marble Company simulation with a series of intact groups such as those Hirokawa and I studied, we would have to decide if the shape of the organizations was a critical variable and design the physical layout in accordance with our decision. My first inclination would be to try to approximate the actual layout of the groups' organization.

There were, of course, a number of other observations that I could comment upon from my three experiences with the game, and from what Lederman has told me about her experiences, but at this point I want to turn to the problem of data collection specifically.

What we wanted to collect was information on what people said and how they acted, both verbal and nonverbal behaviors. During the first two iterations of the game, using students, we used a portable video camera and had three observers unobtrusively roaming the area and taking notes. When we sat down to watch the tape and compare notes, it became clear that the observers "caught" more than the camera did. With so many people talking at once, and so much movement, the audio caught by the camera was mostly just noise. The nonverbal behavior caught by the camera, however, did help to fill in and verify or modify personal observations.

When we ran the game with faculty, we used a television studio and were able to have three stationary cameras plus a couple of portables. One thing we had learned from our previous experience was that in order to collect interpretable audio we needed to focus the camera on spots where we expected to hear significant interactions. For instance, harkening back to the situations Hirokawa and I were studying, we wanted both visual and audio records of what happened in "time out" situations where a supervisor might be asked to spend two minutes counseling an employee who had performed inadequately in one way or another. We also want records of how the chief marbles conducted the board play, and we wanted records of how the mini's and mid's interacted and of how the mid's and their supervisors interacted. Given the complexity of the activity, stationary cameras were good for certain purposes but portables were necessary for others. Also, we believed, on the basis of previous experience, that trained human observers were essential. Finally, we had concluded that the debriefing session was an extremely valuable source of information. What individuals said they had done, compared to what others thought those individuals had done, frequently disagreed. Motives offered for particular actions varied between observers and actors and between specific actors and other players. In short, the debriefing session may be the most valuable single part of the simulation and should be video-taped from several different angles in order to capture maximum information on nonverbal behaviors.

What about using this game, with video cameras and trained observers, to answer some of the questions Hirokawa and I tried to answer through other methods?

First, it is necessary to recognize that the simulation can be, often must be, revised in order to address specific questions. For instance, in order for us to find out how managers deal with subordinate in regard to obligatory and nonobligatory tasks, we would have to insert cards in the playing deck that required such interaction. Also, instead of asking a manager to simply wait a certain amount of time setting out (to simulate dealing with a personnel problem), we would instruct the manager to actually talk with the offending employee, e.g. a mid to a mini. Instead of designing just one obligatory and one nonobligatory situation, as we did in our paper and pencil study, we would have to design several and compare different managers talking to different subordinates about similar but different infractions. We would also have to follow up on these interactions in the debriefing session without giving away our purpose--at least until after we believed that there had been sufficient discussion.

A special advantage of using the simulation for collecting data such as Hirokawa and I were interested in is that the subjects are "trapped," that is, we could ask follow up questions using pencil and paper techniques about effectiveness both within the simulation and outside of it (at the everyday workplace). We could even replicate our original study and then analyze the results in light of the greatly expanded set of data available to us. We could compare self-report to recorded information.

Other advantages that we believe would result from using simulations to study superior/subordinate interaction include the fact that what we observe in a simulation is "real" behavior which can be evaluated and interpreted by the researchers and by the subjects. By bringing people into a lab setting, we can arrange through video-taping to obtain records of both verbal and nonverbal behavior. Also, we can run the "same" simulation on groups of various kinds (e.g., hospital employees, police officers, service agencies, etc.) and we can look at both intact and mixed groups. If we were to bring all the 77 or so subjects that Hirokawa and I studied together in different mixes, we would be able to make more sophisticated observations of gender differences vs. job-related differences (some believe that quite people who become nurses are quite different from those who become police, and so on), and of gender vs. job vs. situation.

Some disadvantages of using simulations to collect behavioral data are obvious. It is extremely time-consuming. It takes time to run the game, a couple of hours at least. A massive data set results from using, let's say 5, video cameras for two hours, and 3 trained observers, each collecting two hours worth of notes.

Just looking at 10 hours of video and reading 3 sets of notes takes a great deal of time. The information must then be coded in some consistent way, the nonverbal behavior presenting special problems since we have less instruments designed to codify it.

Other problems are not unique to using simulations in laboratory settings, but are none-the-less real. People in general tend to fear training games, especially when those games are video-taped and when "the boss" is present. This is an especially compelling reason for us to try out different ways of mixing groups from different organizations, assigning roles rather than leaving them to individual choice, etc.-- experimenting with results given concerns I have expressed earlier in this paper.

On the whole, however, it seems to me that the advantages outweigh the disadvantages. My one experience in using a large scale simulation, the Mass Communication Laboratory, which involved around 50 students and covered an entire semester, convinces me that this general approach results in data with "body" (Harper & Askling, 1980). In general, the richer the data, the more diverse the ways of collecting those data, the more likely we are to be able to develop increasingly sophisticated theories of human communication.

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